

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A process for manufacturing a carbon steel strip suitable for use as packaging steel, in which:
 - a steel having a composition suitable for use as packaging steel, wherein said steel contains alloying elements of Si, Cr, Ni, Mo, and Cu present in an amount less than 1%, ~~and wherein said steel~~, is cast in the form of a thin strip from 0.7 to 10 mm in thickness, directly from liquid metal;
 - an in-line hot rolling operation is carried out on said strip, wherein the strip after hot rolling has a thickness of less than 3 mm, and wherein at the end of which said steel is in the austenitic range;
 - said strip undergoes forced cooling at a rate of 80 to 400°C/s, at both the beginning and the end of which said steel is in the ferritic range;
 - said strip undergoes a cold rolling operation with a reduction ratio of at least 85%;and
 - said strip undergoes an annealing operation.
2. (previously presented): The process as claimed in claim 1, wherein said cast comprises casting between two internally cooled horizontal rolls rotating in opposite directions.
3. (previously presented): The process as claimed in claim 1, wherein said hot rolling operation is carried out in a single step with a reduction ratio of at least 20%.

4. (previously presented): The process as claimed in claim 3, wherein said hot rolling operation is carried out in a single step with a reduction ratio of at least 50%.

5. (previously presented): A process for manufacturing a carbon steel strip suitable for use as a packaging steel, in which:

- a steel having a composition suitable for use as packaging steel, wherein said steel contains alloying elements of Si, Cr, Ni, Mo, and Cu present in an amount less than 1%, and wherein said steel is cast in the form of a thin strip from 0.7 to 10 mm in thickness, directly from liquid metal;

- an in-line hot rolling operation is carried out on said strip in two steps, wherein the first step is an in-line hot rolling step carried out in either an austenitic or ferritic range of the cast strip, with a reduction ratio of 20 to 70%, and then cooled down into the ferritic range, if not already in the ferritic range wherein after said first step, the strip is reheated so as to make said steel pass from the ferritic range into the austenitic range, and the second step is an in-line hot rolling step carried out with a reduction ratio of 10 to 30%, at the end of which second step said steel is in the austenitic range.

6. (previously presented): The process as claimed in claim 5, wherein said first step is carried out entirely in the ferritic range of said steel.

7. (previously presented): The process as claimed in claim 5, wherein said first step is carried out partly in the austenitic range and partly in the ferritic range of said steel.

8. (currently amended): The process as claimed in ~~claims~~ claim 1, wherein after said cast, the strip is made to pass through a region in which it is subjected to a nonoxidizing environment.

9. (currently amended): The process as claimed in ~~one of claims~~ claim 1, wherein the strip is subjected to a descaling operation before and/or during the hot rolling.

10. (currently amended): The process as claimed in ~~one of claims~~ claim 1, wherein said forced cooling is carried out at a rate of 100 to 300°C/s.

11. (canceled).

12. (currently amended): The process as claimed in ~~one of claims~~ claim 1, wherein the strip is coiled at a temperature below 750°C between the forced cooling operation and the cold rolling operation.

13. (currently amended): The process as claimed in ~~one of claims~~ claim 1, wherein the reduction ratio of the cold rolling is at least 85%.

14. (currently amended): The process as claimed in ~~one of claims~~ claim 1, wherein said cold rolling is carried out in a single step.

15 (canceled).

16 (canceled).

17 (original): The process as claimed in claim 5, wherein said cast comprises casting between two internally cooled horizontal rolls rotating in opposite directions.

18 (original): The process as claimed in claim 5, wherein said step is carried out with a reduction ratio of at least 20%.

19 (original): The process as claimed in claim 5, wherein said step is carried out with a reduction ratio of at least 50%.

20 (original): The process as claimed in claim 1, wherein the composition of said steel in percentages by weight is:

$$0 \leq C \leq 0.15\%;$$

$$0 \leq \text{Mn} \leq 0.6\%;$$

$$0 \leq P \leq 0.025\%;$$

$$0 \leq S \leq 0.05\%;$$

$$0 \leq \text{Al} \leq 0.12\%;$$

$$0 \leq N \leq 0.04\%;$$

the balance being iron, smelting impurities and alloying elements in amounts that do not prevent the use of said strip to manufacture packaging steel.

21 (original): The process as claimed in claim 5, wherein the composition of the steel in percentages by weight is:

$$0 \leq C \leq 0.15\%;$$

$$0 \leq \text{Mn} \leq 0.6\%;$$

$$0 \leq P \leq 0.025\%;$$

$$0 \leq S \leq 0.05\%;$$

$$0 \leq \text{Al} \leq 0.12\%;$$

$$0 \leq N \leq 0.04\%;$$

the balance being iron, smelting impurities and alloying elements in amount that do which do not prevent the use of said strip to manufacture packaging steel.

22 (original): The process according to claim 1, wherein the strip is coiled and then uncoiled before a cold rolling operation.

23 (original): The process according to claim 5, wherein the strip is coiled and then uncoiled before a cold rolling operation.

24 (original): The process according to claim 1, wherein the strip after hot rolling has a thickness of 0.9 mm.

25 (original): The process according to claim 1, wherein said strip undergoes forced cooling at a rate of 100 to 300 °C/sec.

26 (original): The process according to claim 5, wherein said strip undergoes forced cooling at a rate of 100 to 300 °C/sec.

27 (original): The process according to claim 1, wherein said thin strip is cast from 1 to 4 mm in thickness.

28 (original): The process according to claim 5, wherein said thin strip is cast from 1 to 4 mm in thickness.

29 (original): The process according to claim 20, wherein the alloying elements are not present.

30 (original): The process according to claim 21, wherein the alloying elements are not present.

31 (original): The process according to claim 20, wherein the alloying elements do not contain Sn, Ca, or Ar.

Amendment Under 37 C.F.R. § 1.116
USAN 10/088,176

Q68523

32 (original): The process according to claim 21, wherein the alloying elements do not contain Sn, Ca, or Ar.